PUBLIC HEALTH ADMINISTRATION IN PIQUA, OHIO.

By CARROLL FOX, Surgeon, United States Public Health Service.

The following report gives the results of a study of public-health organization and administration in the city of Piqua, Ohio, carried on throughout a period of approximately two weeks in the first part of February, 1917.

Piqua is situated in the county of Miami, on the Great Miami River, a nonnavigable stream, about 28 miles north of Dayton and 78 miles north of Cincinnati. The city is served by two railroads—the Pennsylvania and the Cincinnati, Hamilton & Dayton, a part of the Baltimore & Ohio system.

The principal industries of the city are the manufacture of stoves and ranges, felts and blankets, furniture, shovels, underwear, paper, oil presses, tool handles, paper caps for milk bottles, poles and shafts, etc., and limestone quarries. Its population, according to the United States Bureau of the Census, is estimated at 14,152, as of July 1, 1916, of which a very small proportion is foreign.

For information and assistance obtained during the course of the study the writer is indebted to the officials of the health and other departments of the city government, the chamber of commerce, and various citizens interested in the public welfare.

Organization and Administration.

The board of health.—The health organization of the city of Piqua consists of a board of health of five members, a health officer, and a plumbing inspector. The health officer, a practicing physician, is a part-time official, who receives $600 per annum. The plumbing inspector receives $900 per annum, and in addition to the inspection of plumbing acts as a sanitary inspector. No official of the health department is furnished with transportation. There is no office or desk space supplied by the city to the board of health or to the health officer. The latter uses his private office for official purposes.

In addition to the work done by the city board of health there is work of a public-health nature performed by independent workers, notably the registration of births and deaths and public-health nursing. Thus there is a lack of the necessary correlation of public-health functions, which makes it difficult, if not impossible, to secure satisfactory results from the various operations. To a large extent this unfortunate arrangement is due to the inadequate appropriation made to the city health department. In fact, the health department is sadly neglected. All departments of the city government except the health department have full-time executive officers, as the chief of police, the city engineer, and the chief of the fire department. All departments of the city government have been furnished with offices except the health department. All departments are rationally

officered and manned except the health department. The health department may be looked upon as Piqua's army engaged in the war against disease and composed of five generals, a captain, and one private. The least that the city could do would be to place the health officer on a full-time basis and provide him with the necessary assistants, an office, and transportation for a dairy and food inspector.

The following is a tabulation of the activities carried on by the health officer and the plumbing inspector during the year 1916:

Complaints from citizens	219
Written notices to abate	65
Verbal notices to abate	88
Clean-up notices served	37
Number ordered to screen foodstuffs	42
Garbage cans ordered	10
Manure boxes ordered	58
Vaults ordered cleaned	85
Vaults ordered cleaned and abandoned	90
Inspections made	555
Restaurants inspected	2
Vaults cleaned	165
Houses fumigated	34
Milk permits issued	62
Permits to clean vaults issued	165
Miscellaneous notices	1
Rooms fumigated	101
Examination of well water	3
Sewer connections made	122

Requirements of ordinances and regulations.—The State laws and regulations applying to the formation of boards of health, the powers and duties of health officers, and other matters have been summarized in previous reports,[1] and will not be mentioned here.

The city has enacted a plumbing code and ordinances relating to the collection of garbage, the cleaning of privies, the removal of night soil, and the care of stable refuse, and making it unlawful to spit or to throw refuse on the streets, alleys, etc., or to construct a privy vault where a sewer is available.

The board of health has promulgated regulations relative to the sanitary maintenance of barber shops, the protection of food supplies, and the maintenance of the purity of milk. The regulations dealing with milk and other foods, however, were never published in accordance with law, and would therefore not stand the test of the courts.

Dissemination of information.—The board of health has had printed for distribution to the various people concerned, rules for the maintenance of the purity of milk and other foods, and some use is made of circulars published by the State authorities. Aside from this and an occasional article in the local newspapers little educational work has been attempted.

[1] See Reprint No. 284 from the Public Health Reports.

Registration of Births and Deaths.

The local registrar for the city and township does not form part of the local health department. This is not the best arrangement, and the health officer should be appointed registrar for the city.

During the year 1916 there were reported to the local registrar 214 deaths, making a crude death rate of 15.1 per thousand. Of the total number of deaths, 95, or 44.3 per cent, may be classed as preventable. There were but 19 deaths in infants under 1 year of age, making an infant mortality rate of 62.1 per thousand registered births.

During the year 1916 there were reported 306 births, indicating a birth rate of 21.6 per thousand. There were 13 stillbirths reported.

A monthly statement is made by the local registrar to the health officer, containing a summary of the more important information derived from the reports of births and deaths.

The following table gives some statistics relating to morbidity and mortality, as indicated by records of the health officer and local registrar for the year 1916:

Disease.	Number of deaths, all ages.	Death rate per 100,000.	Number of cases reported.	Case fatality rate per 100.	Deaths in infants under 1 year.
Tuberculosis, pulmonary	9	63.5	10	.....	0
Tuberculosis, other forms	3	21.2	.....	.....	0
Typhoid fever	3	21.2	24	12.5	0
Pneumonia	19	134.2	25	.....	2
Influenza	4	28.2	.....	.....	0
Measles	2	14.1	52	3.8	0
Whooping cough	1	7.0	12	8.3	0
Diphtheria	2	14.1	13	15.4	0
Tetanus	1	7.0	1	100.0	0
Meningitis	1	7.0	.....	.....	0
Diarrhea and enteritis	5	35.3	.....	.....	2
Scarlet fever	0	0	15	.....	0
Smallpox	0	0	14	.....	0
Chicken pox	0	0	16	.....	0
Gonorrhea	0	0	8	.....	0
Ophthalmia neonatorum	0	0	4	.....	0
Poliomyelitis	0	0	2	.....	0
Other infections	2	.....	.....	.....	0
Malignant growths	20	141.3	10	.....	0
Occupational accidents	2	.....	.....	.....	0
Other accidental deaths	6	.....	.....	.....	0
Premature	7	.....	.....	.....	7
Malnutrition, inanition, etc	4	.....	.....	.....	4
Other causes peculiar to early infancy	4	.....	.....	.....	4
Total	95	.....	.....	.....	19

Epidemiological Activities.

Report of diseases.—As in other cities of Ohio, diseases are notified to the health officer on forms prescribed by the State board of health. These morbidity reports are forwarded to the State board of health weekly, and a summary of the diseases reported is transmitted monthly. The health officer keeps a record, by months, of the number of cases reported.

A study of the foregoing table indicates that physicians are not complying with the requirements as regards the reporting of diseases.

Control of diseases.—The methods of procedure used in the control of disease are in accordance with State law and regulations of the State board of health.

Investigations of an epidemiological nature are rarely carried on. Fumigations are made by the health officer, as required by law, and quarantine is maintained at the home when necessary. There is no hospital in which to isolate any of the communicable diseases, including smallpox and tuberculosis.

The diseases causing the greatest number of deaths during the year 1916 were malignant growths and pneumonia, followed by tuberculosis, diarrhea and enteritis, influenza, typhoid fever, measles, and diphtheria. The death rate from tuberculosis is not high, due in part, at least, to the fact that overcrowded conditions are not commonly found in the city.

The visiting nurse.—There is one visiting nurse employed in the city. Her salary of $100 per month and the expenses incurred through the purchase of medicines and dressings are paid by private philanthrophy, assisted by the school authorities and by a life insurance company. The nurse works under the supervision of a committee composed of the health officer, the superintendent of schools, and representatives from the Associated Charities, the Federated Clubs, and a life insurance company. Persons whom she assists, if able, are expected to pay a nominal sum for her services. Communicable disease nursing is done only in the case of typhoid fever and tuberculosis. Otherwise the nurse is engaged in all of the various phases of public-health nursing, as well as duties of a more strictly charitable nature. The duties of a visiting nurse may be classed with the most important activities concerned in the prevention of disease.

Program for the future.—Piqua is in all probability destined to expand industrially, and with the expansion will come immigration and the introduction of factors which tend toward a high infant mortality rate, and otherwise exert a deleterious influence on the public health. The city should anticipate this and lay plans accordingly, keeping in mind that "An ounce of prevention is worth a pound of cure." Such plans should include a pure water and milk supply, modern methods for the disposal of garbage and sewage, an isolation hospital, adequate housing facilities, and last but not least, the employment as soon as practicable of an additional nurse to carry on prenatal and infant welfare work, school nursing, and immediate supervision in the home of the prophylactic measures against communicable diseases. Piqua should strive to maintain her infant

mortality rate at the low figure of 62.1 per thousand births, the rate for 1916, as well as her low rate from tuberculosis.

Full-time health officer.—In the interests of efficiency both nurses should be placed in the health department, under the control of a full-time health officer. The latter official should act in a professional capacity at the child welfare dispensary, which, in the course of time, should be established and maintained by the city. He also should be required to investigate every case of typhoid fever, diphtheria, scarlet fever, and tuberculosis for the purpose of determining the exact source from which the patient contracted the infection. It is only after such information has been obtained that rational, scientific preventive measures may be applied, and an epidemic suppressed or endemic foci abolished.

Diagnostic laboratory.—There is no local laboratory. A few physicians make use of the State laboratory for diagnosis. Laboratory findings are not utilized to determine the period for the release of quarantine in diphtheria, nor are cultures taken in the case of contacts.

The following table indicates to what extent the physicians of the city utilize the State laboratory. The tabulation represents the work performed for 23 physicians during the nine years from 1908 to 1916.

The increase in the number of specimens submitted for examination during the year 1916 is very gratifying, and it is to be hoped that in the interests of exactness in diagnosis and the prevention of disease, each coming year will show a steadily increasing demand for laboratory aid.

	Tuberculosis.	Diphtheria.	Malaria.	Typhoid fever.	Total.
1908	35	4	0	0	39
1909	14	1	0	13	28
1910	6	4	0	7	17
1911	30	8	0	18	56
1912	21	0	0	39	60
1913	10	5	2	32	49
1914	15	1	0	30	46
1915	13	2	0	12	27
1916	34	11	0	27	72

For the above tabulation, as well as for information appearing later on relative to the results of the analysis of the water supply, the writer is indebted to the officials of the State board of health.

Municipal Engineering Activities.

Disposal of sewage.—Sewage is emptied into the Miami River untreated. The principal parts of the city are provided with sewers and it is planned to extend the system without delay. Main sewers are planned so that their outlets will be conveniently located when it becomes necessary to construct a sewage disposal plant.

The insanitary surface privy may still be observed even on sewered streets. However, no new ones are being constructed where a sewer is available, and those that already exist are gradually being abolished. The presence of a surface privy is a menace to the health of the community and should not be tolerated where proper sewer connections can be made.

During the year 1916 there were 122 new connections made to the sewers, 87 of which were in old houses, and 35 in new.

Collection and disposal of refuse.—Garbage is collected by contract and fed to hogs. During the year 1916 the cost of collection was $1,696.30. The contract system for the collection of garbage is economical but otherwise is the poorest method that can be adopted.

There is no information on file in the office of the service director relative to the amount collected, etc., but a general inspection of the city shows many instances of garbage mixed with rubbish thrown into yards and alleys and garbage receptacles from which the contents have not been taken for some time.

The city has made no provision for the collection of rubbish. Householders must pay private collectors for this service. A "Clean-Up Week" is observed in the spring, when special effort is made to collect and dispose of the refuse which accumulates during the winter.

Rubbish is dumped at a place designated by the city, but there is no man employed to supervise the dumping. This dump was inspected and found to contain a great deal of putrescible matter in the shape of garbage. The use of refuse as a fill within the city limits is an excellent procedure, provided that putrescible organic matter is excluded.

It is absolutely necessary, in order to place the city on a par with other modern progressive communities, that immediate steps be taken whereby the city will collect its garbage, as well as its rubbish, including ashes, bottles, tins, and manure, and that the garbage be disposed of in a modern way, as, for instance, by incineration. It is probable that the city produces about 7 tons of garbage per day. The erection of an incinerator to dispose of 10 tons would not be an expensive item, and after its erection probably about $8,000 yearly would be sufficient to defray the expenses for the collection and disposal of both garbage and rubbish. The incinerator should be planned so that additional units could be added to keep pace with the city's growth.

A system for the collection of city wastes should include the collection of manure. This material is the chief source of that annoying and dangerous nuisance—a pest of flies. From the standpoint of the public health, its proper disposition is equal in importance to the proper disposal of garbage. Ordinances requiring individuals to

properly care for it are too often ineffectual. It should therefore be collected by the municipality.

The water supply.—The city of Piqua has a surface water supply. It is derived from two sources—first, the Miami River, about 25 miles above the city, and, second, three lakes located just without the city limits. From the first source the water is conveyed by an open canal through the city of Sidney to one of the lakes mentioned above. The canal receives the contents of storm-water sewers at Sidney and is, in fact, open to pollution throughout its entire course. The lakes receive their supply partly from the canal, partly from springs, and partly from the small watershed which immediately surrounds them. On the watersheds of both sources are many farm houses with surface privies.

The outlet of the canal into the lake is so located that there is little or no opportunity for sedimentation of the turbid water of the canal to take place before entering the mains. The grit contained in the water has a deleterious effect on the rubber parts of fixtures.

The city water is hard, its turbidity is high, and it consistently shows the presence of colon bacilli, indicating constant pollution.

On account of the city water not being fit for human consumption, the citizens resort to the private surface well for their drinking water. Of two evils, the latter, under the circumstances, is probably the lesser.

However, the tap water is convenient and it is most likely that many use it to brush the teeth and at times for drinking purposes. Strangers in the city who are accustomed to potable tap water at home are apt to drink the tap water in Piqua until they are informed as to its poor quality, or observe its appearance when drawn in a tub or basin. Residents apparently do not appreciate the bad opinion visitors are apt to form of a city which compels them even to bathe in such water.

The indicated death rate from typhoid fever during the year 1916 was 21.2 per 100,000. The lack of epidemiological data bearing on the disease does not permit one to place the blame on any special cause to account for the presence of the infection. All of the factors entering into the spread of the disease are present, and it is not unlikely that among these the city water may play an important part. It will be noticed in the following table and chart (fig. 1) that typhoid fever is at its minimum during the first six months of the year, begins to increase in July, and reaches its highest point in September, after which it declines.

The other tables show the degree of contamination, as determined by the examinations made of the public water supply by the State board of health. In addition to these examinations there were 60 samples of well water analyzed, 26 of which also showed the presence of colon bacilli, indicating pollution by fecal matter.

A careful study of these tables and local conditions shows conclusively that Piqua should take immediate action to install a system of treatment of the public water supply by rapid sand filtration or such method as may be approved by the State board of health.

Reported cases of typhoid fever for five years, 1912 to 1916.

	1912	1913	1914	1915	1916	Total.		1912	1913	1914	1915	1916	Total.
January	0	0	1	0	0	1	August	3	9	2	0	4	18
February	0	0	1	0	0	1	September	4	[1] 36	5	1	9	55
March	0	0	1	0	0	1	October	2	8	5	3	1	19
April	0	1	0	1	2	4	November	3	2	1	2	1	9
May	0	1	1	0	0	2	December	4	1	1	4	1	11
June	1	0	0	0	2	3							
July	0	4	1	0	4	9	Total	17	62	19	11	24	133

[1] This unusual number of cases was due to a milk-borne outbreak.

Results of the bacteriological examination of 19 samples of city water.

Bacteria per cc at 20°.	Bacteria per cc at 37°.	Colon bacilli in 1 cc—bile.	Colon bacilli in 10 cc—bile.	Colon bacilli in 1 cc—broth.	Colon bacilli in 10 cc—broth.
1,500	.....	.....	Pos.	.....	
700	.....	.....	Neg.	.....	
1,500	.....	Pos.	.....	.....	
5,000	.....	.....	Neg.	.....	
1,500	1,200	Atyp.	Pos.	Pos.	Pos.
250	200	Pos.	...do.	...do.	Do.
45	60	...do.	...do.	.....	Do.
150	110	...do.	...do.	Pos.	Do.
1,927	168	...do.	...do.	...do.	Do.
1,380	276	Neg.	...do.	...do.	Do.
835	156	...do.	...do.	Susp.	Do.
1,440	192	Pos.	...do.	Pos.	Do.
820	372	Neg.	...do.	...do.	Do.
770	252	...do.	...do.	Susp.	Do.
330	192	...do.	...do.	Pos.	Do.
495	216	Pos.	...do.	...do.	Do.
248	144	Neg.	...do.	...do.	Do.
256	108	Susp.	...do.	Susp.	Do.
1,800	.....	Pos.	Atyp.	.....	

Results of the chemical examination of 7 samples of city water.

[Parts per million.]

Sediment.	1. Very distinct.	2. Distinct.	3. Very distinct.	4. Very distinct.	5. Heavy.	6. Distinct.	7. Distinct.
Turbidity	21	16	23	20	65	30	20
Color	16	23	20	16	33	28	None.
Ammonia albuminoid	.152	.110	.168	.138	.418	.392	0.158
Ammonia, free	.046	.020	.018	.020	.052	.022	.070
Nitrites	.0012	.0004	.0012	.0006	.007	.012	.280
Nitrates	4.8	4.2	3.8	3.8	.44	.30	3.04
Oxygen consumed	3.51	2.93	4.23	3.32	6.8	6.5	4.25
Chlorine	4.8	4	4	2	5	6	11
Total alkalinity	200	206	202	204	206	210	166
Total solids	329	330	342	268	345	315	353
Loss on ignition	46	55	55	46	40	60	89

Food Inspection.

There is no inspector employed to inspect foods or places handling foods. The health officer personally exercises some supervision over this matter. An inspection of producing farms is made by the State inspector annually.

Rules for the guidance of milk producers and distributors have been issued by the local board of health, and the regulations of the State dairy and food commission have been reprinted and distributed.

Places handling milk are licensed by the city, but no inspection is made before granting the license.

There is one pasteurizing plant in the city which pasteurizes by the holding method at a temperature of 142° for 30 minutes. The milk is heated and cooled in the same tank by means of a revolving coil, and is bottled by machine. The bottles are capped by hand. The writer inspected this plant, as well as a number of grocery stores, meat markets, restaurants, fish market, confectionaries, bakeries, etc., and found, on the whole, satisfactory conditions.

An inspection of some of the producing farms was also made, but on account of the time of year (February) and the cold weather, observations were not as satisfactory as they might be. The farmers usually carry on the dairy business merely as a side issue. In many instances barns are of the old type, which makes it difficult to maintain cleanliness and often impossible to secure adequate light and ventilation. All had a milk house separate from the stable and some means of heating water to sterilize apparatus. Some of the producers, who are also distributors, bottle on the premises. There is no ordinance, however, which requires that milk be sold in original packages.

Hauls are short and by applying the principles of cleanliness it would seem that it should be an easy matter to deliver milk to the consumer with a bacterial content of not more than 100,000 per c. c. There are no records on file in the health department showing the results of examination of milk samples collected in and around Piqua. The milk supply from producer to consumer should be given a thorough study after a milk and food inspector has been appointed in the health department, but there is no doubt that all milk should be pasteurized before it is permitted to be sold within the city. By pasteurization is meant heating the milk to 145° F. and holding at that temperature for 30 minutes. The milk should then be immediately cooled and bottled. All pasteurizing machines should be equipped with a temperature recorder and a thermo regulator.

The tuberculin test is applied by a few producers only, and therefore it must be concluded that milk containing tubercle bacilli is frequently sold. Pasteurization would render such milk harmless. Piqua has had one bad outbreak of typhoid fever transmitted through

the milk supply, and there is no reason to believe that it may not have another. Pasteurization would effectually prevent such a calamity.

There are two slaughter and packing houses located within the city limits. Both were inspected and conditions found to be satisfactory. They do not, however, do an interstate business and are therefore not inspected by the United States Bureau of Animal Industry. The city should provide for a supervision over these plants, including the inspection of cattle before and after slaughter. This work could be done by the food inspector. There is also some slaughtering done at a place just outside of the city limits. Here also the city should exercise supervision.

Health Supervision of Schools.

Beginning with the present school year the school authorities inaugurated a system of health supervision over the children of the public schools. The work was performed by physicians who volunteered their services and at the same time there was appointed a medical inspector in compliance with State law. Defects, together with other necessary information, are noted on a card devised for the purpose. This card follows the child throughout its period of school life. The school authorities assist in paying the expenses of the visiting nurse, and, therefore, part of her duties consists in follow-up visits to the homes of the pupils who are in need of further attention. She also gives lectures to the pupils of the public schools and before mothers' meetings held in the schools.

Expenditures of Appropriations.

During the year 1916 there was appropriated to the health department the sum of $2,108.61. To this must be added the income from other sources—i. e., licenses, etc.—$751.20, and the balance from the previous year, $649.28, making a total of $3,509.09. From this amount there was expended the sum of $2,958.46, leaving a balance of $550.63, which may be reallotted for use during 1917.

The above sum was expended as follows:

Salary of health officer	$600.00
Salary of plumbing inspector	725.00
Stationery	63.15
Incidentals	47.75
Advertising	57.79
Medical supplies	11.15
Removal of dead animals	97.92
Supplies (disinfectants, etc.)	59.30
Maintenance of persons in quarantine	186.40
	1,848.46

Liquidation of bonds	[1] $1,000.00
Interest on bonds	[1] 110.00
	2,958.46

The budget for the first six months of the year 1917 is as follows:

Health officer	$300.00
Plumbing inspector and sanitary policeman	450.00
Stationery and printing	50.00
Medical supplies	25.00
Quarantine	200.00
Sanitary	50.00
Removal of dead animals	37.50
Incidentals	62.00
Contingent	150.00
Total	1,324.50
Retirement of bond	500.00
Interest on bonds	40.00
Grand total	1,864.50

This allowance does not differ materially from that of 1916. In the budget system the board of health is not given much discretionary power in the matter of expenditures. The various amounts allotted can not be exceeded, and a balance from one allotment can not be used to make up a deficit in another. Thus the health officer is not permitted to use his judgment and expend his appropriation according to the requirements of the occasion. Such limitations placed upon future expenditures on account of the public health prevent efficient work except of a purely routine nature.

The income of the city, through taxation for the year 1916, was $112,526.76. From this must be deducted the sum of $49,673.93 set aside for the sinking fund, which leaves $62,852 for the general maintenance of the city government. The amount required for public health purposes would be $8,500, to be spent about as follows:

1 health officer and local registrar, at not less than	$2,000
2 public health nurses, at $900	1,800
1 milk and food inspector	900
1 plumbing and sanitary inspector	900
1 clerk	600
	6,200
Transportation, quarantine, office expenses, supplies, etc	2,300
Total	8,500

The sum given above covers the employment of a full-time health officer, three new positions—namely, a milk and food inspector, a public health nurse, and a clerk—and the payment by the city of

[1] These amounts should have been paid from the sinking fund.

the nurse now being paid by private philanthrophy. It would also be necessary to provide inexpensive automobile transportation to the milk inspector and an office for the health department.

On account of the limited income of the city, it might be desirable and would be entirely feasible, for the cities of Piqua and Troy to combine in employing one full-time health officer to act for both communities. This expedient has been tried elsewhere with success.[1] It is also likely that one dairy and food inspector could adequately maintain supervision over the milk supply of both cities.

Recommendations.

As a result of the foregoing studies of public health organization and administration in Piqua, certain definite conclusions have been reached and are made the basis of the following recommendations:

1. That a full-time health officer be appointed at not less than $2,000 per annum, whose tenure of office shall depend upon efficiency and whose duties shall be executive, epidemiological, and professional.

2. That there be appointed an inspector for the inspection of milk, meats, and other foods.

3. That the nurse already employed by private charity be transferred to and paid by the health department, and that the health department employ one additional nurse; that both nurses work under the supervision of the health officer and perform all of the duties required of public health nurses, including prenatal and infant welfare nursing, communicable disease nursing, and school nursing.

4. That the health officer be made the local registrar of births and deaths.

5. That the health department be provided with an office.

6. That the health department be provided with a clerk.

7. That the health department and the practicing physicians of the city make greater use of the State laboratory.

8. That a thorough study be made of and a better supervision be maintained over the milk supply of the city.

9. That all of the market milk of Piqua be pasteurized before being offered for sale to the public, and that to insure the efficacy of pasteurization uniform methods be required.

10. That the cooperation of the police force be obtained to investigate nuisances and to issue the necessary orders for their abatement.

11. That all surface wells within the city be eliminated.

12. That water mains and street sewers be extended to all parts of the city as soon as possible, and that all surface privies be abolished.

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[1] See Reprint No. 222 from the Public Health Reports.

13. That the health department furnish disinfectants free of charge to families in which there is a case of typhoid fever, and anti-tuberculosis supplies in the case of tuberculosis.

14. That at the expiration of the present contract the city organize its own system of garbage, as well as rubbish, collection, including manure; that the types of wagons adopted be such that they may be used for both garbage and rubbish.

15. That each householder be required to provide a proper garbage can.

16. That the city install as soon as possible a modern method for the disposal of garbage.

17. That the city install without delay a water purification plant.

18. That the educational work of the health department be extended.

19. That automobile transportation be furnished for the use of the milk inspector.

20. That adequate regulations be promulgated by the board of health to provide for the care and disposal of manure, the regulation of tenement and lodging houses, the maintenance of the purity of foods, and the cleanliness of places handling foods, etc.

21. That all citizens of the city cooperate with the health department in its efforts to suppress disease, and that physicians report promptly all cases of notifiable diseases.

22. That immediate steps be taken toward the erection of a district sanatorium for the isolation of the tuberculous and a city isolation hospital for the care of other communicable diseases.

23. That not less than $8,500 per annum be appropriated to the health department to defray the expenses incurred in the maintenance of the public health, to be spent as indicated in the body of the report.